

STUDIES IN THE GENUS HISTER

(Coleoptera, Histeridæ)

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Subgenus SPILODISCUS Lewis

The Pacific Coast species of the *militaris* section of this subgenus, *militaris* Horn, *oregonus* Csy., *electus* Csy. and *simplicipes* Fall, are very closely allied if indeed they be distinct. The last originally described as a rather isolated species and later placed as a variety of *oregonus* was characterized by having the pro-tibiæ non-denticulate along the outer margins. *Oregonus* was separated from *electus* by its more coarsely sculptured elytral flanks, almost non-denticulate fore-tibiæ, narrower form, finer pygidial punctuation and several other characters; *electus* being distinguished from *militaris* by its greater number of pro-tibial denticules.

In an attempt to determine the validity of some of these characters I have brought together as large a series of material relating to these species as I could. Most of this material, in addition to my own, was contained in the collections of Doctors E. C. Van Dyke and F. E. Blaisdell, Mr. J. O. Martin and Mr. L. S. Slevin, deposited in the Museum of the California Academy of Sciences. Unfortunately no specimens were available from Oregon or Washington from which states *oregonus* and *electus* were described; however the series contains representatives from many localities in California, from Lassen County in the north, south to San Diego. In spite of this wide range I have concluded that only one species is represented; that being *militaris*.

For the purpose of determining sex the genitalia of all the specimens were dissected out. A rather interesting correlation of characters was thus discovered; it was found that in every case regardless of distribution, the males possessed the non-denticulate fore-tibiæ characterizing *simplicipes* while only the females had the "normal" denticulate tibiæ. In addition the males were found to be on the whole smaller and more narrow with their pygidia distinctly more weakly punctate; otherwise further secondary sexual characters were not apparent. The striation of the pronotum and elytra showed no peculiarities correlating with sex but exhibited sufficient variability to exclude such characters from use in separating these species.

From these observations it is at once apparent that the form described as *simplicipes* is merely the male of *militaris*, also that the characters used for separating *oregonus* from *electus* seem to be secondary sexual in nature; the former undoubtedly being described from a male and the latter from a female. I cannot find in checking specimens of *militaris* with the descriptions of *electus* and *oregonus* any differences other than those subject to variation. However, except for *simplicipes*, the possible synonymy suggested above must not be regarded as conclusive until specimens from Oregon and Washington are available for examination.

Three specimens in this series from Laguna Beach, Calif., representing both sexes are totally black showing no indication of the usual red and black coloration of the elytra. This is not due to the decolorization of the red by exudation of grease as the specimens are perfectly clean and dry. This peculiarity also noted by Fall (1901), indicates that the red and black coloration of the elytra cannot be used as a general characteristic of this section as supposed by some workers.

Hister s. str. Group SEXSTRIATUS

This group, originally containing the one species *sexstriatus* Lec. (1851) from San Francisco, Calif., has since been enlarged by the addition of *maritimus* Csy. (1916) also from San Francisco and *jacobianus* Csy. (1916) from San Diego. The last was separated from the two northern species by the strong transverse frontal stria of the head which is weaker and inflexed in *sexstriatus* and interrupted medially in *maritimus*. The size and form of the species were also used as characters for their separation by Casey.

In examining over sixty specimens of this group from San Francisco and vicinity I find that the characters used for separating *maritimus* from *sexstriatus* are subject to considerable variation. The frontal stria on one hand may be entire, strong and only slightly inflexed while on the other represented by only weak lateral rudiments. These extremes and all degrees of variation between them may be seen in any large series even when collected in the same locality under identical conditions. Furthermore size and form seem to be in no way correlated with

any structural peculiarities; the length varies from 5 to 8 mm. and averages 6.5 mm. These facts suggest that *maritimus* is merely a variant form of *sexstriatus*.

The southern exponent, *jacobianus*, is readily distinguished by characters which are more constant and which correlate well with its distribution; however they are not sufficiently strong or clearly defined in specimens from its northern limit of range to warrant its status as a distinct species; it seems preferable to consider it as a subspecies of *sexstriatus*. This subspecies is characterized by its strongly impressed transverse frontal stria and by its less definite third dorsal elytral stria. The latter varies, being strong and entire as in *sexstriatus* in some individuals, or almost obsolete except for a fine rudiment in the basal third in others; this latter condition seems to be the most typical in spite of the fact that the form was described from an example having the third dorsal strong and entire. In all other respects including size variation this subspecies resembles *sexstriatus*. It is distributed from the southern San Joaquin Valley in the north, south along the coast and in the mountains to San Diego. I have also seen specimens from south central Arizona which are identical with the California material and which constitute a new record of distribution for the group.

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COLLECTING BEES FROM CACTUS FLOWERS

In collecting bees from cactus flowers the use of a net is distinctly limited. Females of several species may be readily captured by merely placing the mouth of a collecting vial over the flowers from which they are gathering pollen. Males, however, do not always visit the flowers, but in certain species fly rapidly about the plant in constant search for females. This particularly applies in the case of *Diadasia*. These latter may be collected by placing a dead female in the center of a conspicuous flower. The male bees locate the female (apparently by sight) and alight upon the flower, remaining long enough to be easily captured.—E. Gorton Linsley.